

THE
SOUTHERN AGRICULTURIST.

SEPTEMBER, 1829.

PART I.

ORIGINAL CORRESPONDENCE.

ART. I.—*Back Country Cultivation.—On Horizontal Ploughing in the Upper and Middle Country;* by ELDRED SIMKINS, Sen. of Edgefield.

OBSERVATIONS BY THE EDITOR.

WE present to our readers one of the most interesting papers we have ever received. It is of so much importance to the upper and middle country of all the Southern States, that we do not hesitate to insert it in preference to many other well-written Communications, because we wish particularly to call the attention of every upper country planter to the subject it treats of; to ask their aid in the investigation of it, and the assistance of such of our friends as have access to foreign agricultural works, to help us with information on ploughing and *draining* lands diversified with hill and dale.

Mr. Simkins, with a discernment which does him infinite credit, has, we think, struck at the root of Western Emigration. We hear and read of severe ploughing and cropping; of worn-out lands, and of the mismanagement of upper country farmers and planters; but we confess we have been in the dark until this judicious paper came into

our hands, and at a loss to know precisely, what the radical error was in back country culture, which occasioned the removal of so many families into other States ; where the evil *began*, and why it is considered by so many as being without a remedy.

Arthur Young, somewhere in his works, says, that the heaviest fall of rain upon record, took place in South-Carolina, and in our days we have frequently more than we know what to do with, even in our flat sea-shore lands.— Every one is aware that a superfluity of moisture is destructive of vegetation. It appears to us then, that whether the water furrows run horizontally along the hill, or diagonally down the hill, however gentle the slope given them may be, still other water courses or drains will be wanting in excessive floods of rain.

In the first case, if the *superabundant* water could be kept back, it would ruin the crop ; but in impetuous showers, the water must find its way down the hill, and will break over somewhere, forming gullies in its progress, which will become larger in proportion to the height and rapidity of the descent.

In the other case, the furrows will collect the water also, which will increase in each, as it flows along, and produce in the end, as destructive effects, namely, washing away the soil, and even sometimes a part of the crop.

On a subject so vitally important as this evidently is to the upper and middle country, and in a season, if we may judge by the rains in the low country, likely to have produced great damage on hilly land, we confess we feel anxious for furthur information. How our upper country friends will do without regular drains leading down the hills, we do not very well see at present. If they are numerous, the water being greatly subdivided, will be less injurious to the soil than when collected in large bodies, but drains will interset with the speed of the plough.

Sismondi informs us, that in Tuscany the terraces are drained by ditches only fifty or sixty feet apart. The difficulties in that climate are similar to our own, but a dense population, without a wilderness to retreat to, compels the inhabitants from necessity to make the most of their lands. The sides of the hills are therefore laid off in terraces, rising from three to six feet in height, and formed by walls of turf to support the soil and prevent its being carried away.

Notwithstanding this arrangement, which effectually prevents washing, the heavy rains must be furnished with vents down the hill. "It is necessary," says this interesting author, "that the ditches which are made down the hill for draining the water, *should be nearer each other than in the plains*; they are made generally fifty or sixty feet apart, so that each containing but a little water, it will not wash away the soil, or form torrents in heavy rains."—*Tableau de l'Agriculture Toscane*, p. 110.

J. G.

"*Mr. Editor* :—I avail myself of the present moment to redeem a pledge I gave you, to communicate the result of my experiment on horizontal ploughing. I regret that this has been so long delayed, and must now be so imperfectly fulfilled. This is but the second year of my adopting the plan, and were it not a truism, that an intelligent people, (one trusting to another,) very frequently too long slumber over that which is universally interesting; I should deem it most strange that *such* a people should never have pushed further, and published more on a subject as vitally important as that even of seeking the means of gaining their "daily bread." I speak now with especial reference to my fellow-citizens of the middle and upper country of all the Southern States. It is obvious that the inhabitants of these regions possess a kindly free soil, which, managed skilfully, or even with common care, pushes rapidly into vegetation all the productions essential to a profuse enjoyment of the blessings of life; but it is equally clear, that generally, we cultivate a loose soil, quite undulating, and in very many places so diversified with 'hill and dale,' that if cultivated in the ordinary careless way, it is swept almost entirely off by the falling of heavy and sudden rains, in a very few years. What was at first a generous soil, is thus totally gone, and the lands left a barren waste! Look at some parts of Maryland, a vast deal of Virginia, North-Carolina, and I feel humbled when I refer to states so young as South-Carolina and Georgia. In what was lately fertile fields in States, but of yesterday new, in many parts, present bald hills, and extensive wastes, as desolate as if the besom of destruction had passed over them. Are we then prepared to abandon the land of our forefathers, the proud and once generous regions of South-Carolina, and fly to the West for land, there to commence again the work of destruction upon

the *soil*? We *must*, indeed do so, unless we can *preserve* and *improve* our *land*. How is this to be done? We humbly but confidently hope, *in part*, at least, by a system of horizontal ploughing.

Every body will know that by this system, we mean ploughing on the level of the ground to prevent the water which falls, from concentrating at any one point, so as to break over the furrows and sweep away the soil. I have already said that this is but my second-year's probation on this interesting subject, and with my attention occasionally called off to other subjects, my experience is, of course, but short and imperfect. If, therefore, I may be only the instrument of awakening the attention of closer observers, and more vigilant, judicious, and persevering planters, in these *suffering States*, it will be a point of some importance gained.

Intending to go pretty fully into the plan, *the first year*, according to my limited means, I took the level of about three hundred acres of those parts of my fields most subject to be injured by washing. This was done in the following way:—The legs of the compass, used for the purpose, extended sixteen and a half feet apart, being larger than common, because, with a smaller one, the work would have been too tedious for the time allotted us. Instead of staking off the ground *when* and *where* we had found the level, which perhaps might have insured a little more accuracy, we adopted the more speedy method of following the level or compass, by a plough, with a careful ploughman, and a gentle horse, by which a small furrow was run exactly where the level was found. After following the level to some definite point, such as a fence, a wood, or road, we then ran another furrow parallel with the first, or as nearly so as pursuing the level would permit, at a distance of fifteen, twenty, or thirty yards, as might be deemed most judicious; for this must be judged of from the hill, and situation of the ground. If the hill be round and regular, then the work is easier, and the lines taken by the level need not be so frequent. Whenever the hill is more uneven, so as to cause the lines to diverge in some places, and to come nearer together in others, the intermediate spaces must necessarily be filled up by short rows, which is certainly one of the most considerable inconveniences attending the plan; but considerable as it is, it is by no means so appall-

ing as at first would strike an observer. The practical efforts of ploughmen, and the training of mules and horses to a particular plan, render that comparatively easy, which may appear difficult in the beginning.

Now it is quite clear, that the success of this experiment must greatly depend on the accuracy with which the level is taken, and the excellence and proper adaptation of the ploughs which are used in breaking up the land, and in its cultivation afterwards. It is also very evident that the plough should not only be fitted to break and throw up the earth well, but to leave a deep and regular middle, or water furrow.* We call it 'the water furrow,' because to insure success, it should not only hold a good deal of water in the event of great rains, but be so regular, level and even, as to keep the water from collecting or concentrating at any one point. If any large quantity is suffered to collect, why of course it must run over the furrow, and go somewhere, and in its progress it collects other water, and becoming larger, widens, and goes off with such force as to leave a most injurious lane or *crevase* in the field. It, therefore, scarcely need be observed, that the greatest *desideratum*, and requiring the most adroit skill, in this kind of ploughing, is to keep any considerable body of water from concentrating. Hence, planters must guard, very carefully, the tops of all hills to prevent uneven or hard places, and all paths or roads in, adjoining, or about their fields. Roads and hard places in adjoining grounds, should be ditched on each side, or so stopped or insulated, as to prevent water, which will forever collect on, and along them, from coming in a deluge or even a small rill upon the fields laid off horizontally. I have suffered more from a road which runs through one of my Cotton fields, than from all other causes.

My experience indicates the following as some among the advantages of this system, viz :

1. That it does, to a considerable extent, prevent the washing away of the soil by large and impetuous rains, which I take to be the greatest besetting evil to which our lands in the upper and middle country is subject.

If it be asked whether horizontal ploughing can be brought to such perfection as to prevent any, or all, washing away of the soil, I reply that to this question, I do not pretend,

* A deeper running and larger plough, is sometimes used to run the water furrow, than for other purposes.

at present, to give a definite answer. Intelligent gentlemen do insist, that by taking the level of your land with practicable and perfect precision, and by skillfully made ploughs, and careful ploughing, (having due reference to obviating the difficulties before alluded to,) the soil may be effectually kept from washing off.

As for myself, so far from pretending to have arrived at such perfection, I well know that both my ploughs and ploughing are far short of the mark, and although my laying off or levelling is better or more perfect than my ploughs, yet it is by no means precise. Last year, being my first year of trial, my horizontal fields washed but little—this year, a good deal more, because the rains have been much more frequent, heavy, and impetuous. From an experience, however, in both systems, it gratifies me to be able to state it to the public, as my deliberate conviction, that even this year, (thus far, subject to uncommonly heavy and numerous rains,) my lands would have washed away five-fold more by the old, than the newly adopted system of ploughing.

2. Another advantage of this method of culture is, that the burdens of your horses, mules and oxen, whether in drawing ploughs, carts or wagons, are all constantly carried on a level, instead of being hauled up and down hills.

3. This method retains on the fields the moisture which falls, whereas by the old, it is rapidly carried off.

4. This method, inasmuch as it preserves more effectually the land from washing, retains, as a matter of course, more perfectly, manures, and every thing put upon the fields.

Having pointed out some of the advantages of the system, I now proceed to mention some of the disadvantages or inconveniences incident to it, as they appear to me.

1. The first, and probably the most important, is, that in the horizontal method, so great a quantity of land cannot be cultivated, the ploughers having to turn more frequently in the short rows, which are necessarily incident to the plan. Some suppose so much cannot be cultivated by one sixth. I am not disposed, however, to make quite so great a difference, especially considering that the beasts of burden have the advantage of constantly working on level ground.

2. By *ploughing alone*, the planter cannot make his cultivation so clean, by the horizontal as by the other method,

seeing that by the former in Indian Corn, particularly, and in Cotton, if planted in squares or hills, he can plough both ways, and thereby more effectually take out the grass.— This, of course, does not apply to culture by the hoe, which is nearly the same in both methods of planting.

3. In the horizontal plan, if there is a breach made in the fields, by a wash or overflow, it is apt to be more wide and sweeping, because in its course it collects more water and attains more force.

Taking however every thing into consideration, I deem it almost certain that every reflecting, judicious planter, having tried both, would give a pretty decided preference to the horizontal method in all hilly lands, unless, indeed, he felt bound to take refuge in the profound and virgin forests of the West.

There is another method of ploughing much approved of by some judicious planters, not strictly horizontal, but verging that way. It is by ploughing obliquely across the hills, so as not to retain the water entirely on the field, but to conduct much of it off in the furrows, so quietly and slowly, as not to wash much, if any, and not to incur the injury caused by the water breaking over the furrows. I have tried this partially, and am of the opinion much may be gained even by it, compared with the old plan.

Although, Mr. Editor, your subscription list is, I believe, gradually increasing in the upper and middle country of the Southern States, I unfeignedly regret that it is as yet so small, because a free discussion about the most skillful and careful systems of culture, among all ranks of people in these regions, is more important, in many respects, than in the lower country, where your work has the widest circulation, and in no respect perhaps so vitally interesting, as on that system of ploughing that shall most effectually preserve the land.

I am, very respectfully, your obed't. serv't,

ELDRED SIMKINS, Sen.

Cedar-Fields, near Edgefield Court House, }
1st July, 1829. }

To J. D. LEGARE, Esq.

ART. II.—*On the time to Plant Sea-Island Cotton, and on the best mode of treating new and worn-out land; by THOMAS SPALDING, Esq. of Georgia.*

(Continued from page 351.)

My transient observations upon deep ridging, in a preceding part of this letter, will have conveyed to you before we have arrived at that part of the inquiry, my opinion upon the "best mode of treating new lands, to prevent them from being worn out too speedily," or of restoring "old fields."

In the first instance, I would only recommend an early burying deep the vegetable matter of the surface under the substratum, be that stratum what it may, that the vegetable matter might be prevented from washing away, by our tropical rains, or being exhaled by our tropical sun, before it has fermented, digested, and imparted its gaseous influence to the more solid substances, on which it may repose.

In improving worn-out lands, I would still look to high ridging as the first means, covering deep all the vegetable matter to be found, or to be placed on the surface, and bringing up from the greatest depth to be reached, either by the hoe or plough, a new and unpracticed-upon surface.

The substratum of all soils are too ponderous to be acted upon by the wind in any great degree, and is benefited by the sun, but above all, being for the first time exposed to atmospheric influence, it absorbs from that abundant source of life and being, many qualities corrective of itself and necessary to vegetation.

Deep trenching brought Flanders from being the poorest to be the richest country in Europe, but trenching sandy soil eighteen inches deep with the spade, as practiced in Flanders, and sometimes in England every third year, is too expensive for us, yet the deep ridging of nine inches, which we can execute with the hoe, is an approximation to this beautiful Flemish system which must and would result in good. But there is no course practised by man that can be widely and for a long time useful, unless he gathers from nature the instructions which she has every where spread around him.

Are the woods destroyed by storm or fire, a new race of timber trees spring up. Do you have a field uncultivated,

the first year gives an abundant coating of grass, the next of fennel or coarser weeds, and the third of some broom, or inferior grass. Do we not see in all this, that nature abhors repetition, in any form, and requires change, and happily for us in our agricultural system, the subjects of valuable culture in our climate are equally divided between those two great families of plants that are to each other as light and shade, the one with round leaves and long roots, piercing the earth deeply, the other with narrow leaves, and roots spread like a net-work upon the surface.

Such are Cotton and Indian Corn, our great crops on dry land, such would be Cotton and Rice, on swamp land, and such would be Cotton and Sugar-cane, on either description of soil.

But to reclaim worn-out high lands, I would work deep, put Cotton the first year, follow it up with Corn, adding all the manure within my control, leaving it to grass the third year. I would burn the fourth spring, every thing from the surface, to guard as far as possible against rust, a growing evil, which I consider *animal*, and best checked by fire.

I think most soils would mend under this three year system, with deep ridging, well followed up, with such additional aids, from manure, as particular locations and individual experience might point out.

I have laboured much, and have had but little success in multiplying my Olive Trees. I have set out thousands, and yet have growing but about fifty. This I attribute to the particularly unfavourable seasons, great drought, accompanied with intensity of heat from the sun, at times, during the two last years. Yet we have learnt something in our progress—although cuttings from one inch downward, may grow in very favourable seasons and very favourable soils, yet it is only large limbs divided into lengths of ten or twelve inches, that can be depended on for growing.

Mr. Couper has been more successful than myself, and commencing upon a much larger scale, will soon, as I believe he intends, cover his fields with Olive Trees.

As to the adaptation of the climate to the growth, that question has been settled years past; for as far as I know, there never has been an Olive Tree since the first introduction into the country, between Charleston and St. Augustine, destroyed by frost, although we have been visited,

within a few years past, with winters of unprecedented severity.

In the south of France, Arthur Young tells us, they had been generally killed to the roots, immediately preceding his last tour. If the growth of Olives, then, in France, subjected as they are to these accidents, is profitable to the individual, and beneficial to the nation, it ought to be much more so in this country, where they are free from these accidents, and where lands, for ages to come, will be so abundant and cheap, as after supplying what may be required for grain or grass in domestic economy, will yet leave enough to furnish fields of Olives and Mulberries, requiring little more labour from human industry after having grown large, and shaded the land, but to gather the fruit of the one, or the leaves of the other.

There certainly is no country under the sun, where either the Olive or the Mulberry grows faster, or where they are more beyond the reach of accident, than in this. The hurricane of 1824, passed over my Olive Trees, and brought with it the ocean water to the depth of six feet, yet neither the one, or the other did more than destroy the crop of fruit for the season.

I couple together the cultivation of these trees, because they grow in the same soil, they require the same temperature for full success; and because the labour that is necessary to obtain profit from them, is spread through the spring and autumn months, and would well combine with a moderate Corn crop, which would be enough, and more than enough, for the supply of the farm or plantation.

The Silk-Worm would require care and food in April and May; September and October would be occupied in gathering Olives, and in expressing the oil; the intermediate months would be well employed in sowing, in planting, in weeding, in gathering or in reaping the grain crop.

You will see that I have wandered beyond your inquiry upon this subject, but every fibre in my frame quivers, when a hope comes over my mind, that at some future day, and that no distant one, the thin population of the South, taking refuge in minor occupations, may escape from the hands of plundering monopolists, leaving them with slackened looms, and moveless wheels, to repent the ruin they themselves have wrought.

I shall take great pleasure in communicating your desire to Gen. Floyd, and Mr. Couper. I agree with you that Gen. Floyd's letter upon Indigo, is all that could have been desired, and all that could have been required. His information upon Indigo is beyond that of any one in our State, and probably beyond that of any one in your's.

I remain, dear sir, your obed't, humble serv't,

THOMAS SPALDING.

ART. III.—*Remarks on the Advantages of Marsh Mud as a Manure for Cotton; by WHITEMARSH B. SEABROOK, Esq.*

(Concluded from page 264.)

“Edisto-Island, May 28th, 1829.

To the EDITOR of the “SOUTHERN AGRICULTURIST.”

3. Whilst Marsh-Mud withstands the injurious consequences of drought better than any other manure with which we are acquainted, it is but little liable, necessarily, to render Cotton susceptible of a new growth. A new or second growth to the Cotton-crop during the bearing season, is generally a certain indication of its eventual unproductiveness. The arrest of the procreative power of vegetation, although proximately to be ascribed to the absence of moisture, yet it is greatly accelerated by substances of a directly stimulating tendency. “When the tap-root of Cotton comes in contact with them, the plant is preternaturally excited, and its subsequent fruitfulness depends chiefly on the regularity of the season. In a drought, from the desiccation of the sap, from the extreme heat which the manure generates, the leaves wither, and a general predisposition to disease is formed. If the dry weather be followed by one or more heavy showers of rain, the plants assume new vigour and life, with the certain consequence of a loss of all the pods which may not have attained a mature age. Should Cotton on a weak soil, from the excitement of the season, begin to grow anew, the prospect of the planter is seldom blighted; but

the same plant, on lands artificially enriched, acted on alike by an invigorating atmosphere, and the mass of manure which lies in contact with its roots, rarely escapes an irremediable injury."* The comparatively luxuriant appearance of Cotton, assisted with marsh loam in a drought, is to be traced to the attraction of salt for water. Examine at any time the smallest lumps beneath the list, and you will invariably find them replete with moisture. Hence, mud may be denominated a cold manure and better fitted for high than low lands: hence, too, the unfruitfulness of a muddled field, in the infancy of the crop. Another cause, however, and it may be the main reason, contributes to this effect. If not pulverized, mud is impenetrable to the tap-root of Cotton.† In its descent, as soon as it meets with a mass of this matter, its point, it would seem, receives a wound, which, I am led to think, must be healed before the plant can resume its functions. To the want of a tap-root, or rather to the extreme shortness of this great conductor of nourishment, is perhaps ascribable the capacity of the Cotton-crop, when invigorated by the alimonious property of salt, to preserve its health and vigour, of a rainy season. It is true that the advantages of mud are not so manifest in a wet as in a dry summer, yet, I am not aware that they are less than, in such an event, are derived from other manures. I would here remark, that ten single horse-cart loads of mud to the task, strewed below the list, and a peck of Cotton-seed‡ to the row, above the list, will insure on all grounds, not very high, a larger crop of Cotton than any other compost with which I am acquainted.—They constitute, in short, one of the most invaluable secrets in the system of fertilizing Cotton lands, that has yet been discovered.

4. Mud is an effectual safeguard against what is technically called blue Cotton.§ The peculiar property of the soil which generates this disease, I am ignorant of, but so

* The above is an extract from my report to the Agricultural Society of St. John's, Colleton, on the causes which contribute to the production of fine Sea Island Cotton. Experiments and observations have confirmed every opinion advanced on that subject. I now unhesitatingly assert, that animal manures do detract from the fineness of Cotton, if used in any considerable quantity.

† I here allude to mud in a lumpy state, and not to that which is spread. Whether the tap-root descends through soft mud, I know not.

‡ Any other heating manure, I imagine, would answer as well.

§ So called from the colour of the leaves and stalks.

destructive are its effects, that several plantations on this Island, that were, at one time, but of little value in relation to the production of Cotton, are now among the most profitable, from the steady application of marsh earth. The lands of Daniel Townsend, Ephraim M. Seabrook, Jun. and William M. Murray, were notoriously distinguished for raising blue or fruitless Cotton-plants. From Mr. Townsend, whose information on the subject of this communication, is very extensive, I learn that he has used marsh loam, almost exclusively for fifteen years, with the most decided advantages, and that a stalk of Cotton of the character alluded to, is seldom to be seen in his fields, except where some other manure had been applied. The plantations of Mr. Seabrook and Capt. Murray, afford signal evidences of the power of salt mud to neutralize those properties of the soil which are hostile to the bearing of the Cotton-plant.— On a section of his field, from which, the sad experience of its former proprietor had induced him to believe, he would be presented in the fall with naught but an assemblage of luxuriant, but podless stalks, Mr. Seabrook, the last year, strewed an hundred and twenty cart-loads of mud to the acre. The result was the unexpected harvest of three hundred and twenty pounds per acre. Capt. Murray, the past season, tried the following experiment, with a view to ascertain whether the soil of the place he had recently purchased was adapted solely to the culture of provision crops. He selected twelve contiguous acres, three of which he assisted with mud, the others were unmanured. The mudded portion of the field realized the average product of two hundred and twenty pounds to the acre—the residue, about twenty-five pounds. Many other instances equally strong, of the extraordinary efficacy of this manure in remedying the disease to which I have invited your notice, could be adduced.

5. Salt mud improves the strength and fineness of the staple of Cotton, although not in a remarkable degree.— “Fineness,” says a distinguished spinner of Manchester, “is not the most important requisite, nor only criterion of the value of Sea-Island Cotton. Strength is a quality without which fineness is useless. Fine Cotton, if equally strong with coarse, will make better yarn even at such numbers as the course will spin well to, but if the fine Cotton be weak, the reverse is the case. Strong Cotton, however coarse, will make good yarn at some numbers, but weak Cotton,

however fine, will never make good yarn." The strength of the Cotton fibre depends primarily on the natural fertility of the soil. That it may be increased by artificial means, and most sensibly impaired by injudicious treatment after the crop is harvested, we are satisfied from experience. If the object of the planter be the improvement of the quality of his crop, in relation solely to strength, the excrement of animals should unquestionably be resorted to, as contributing the most effectually to that result. Should his aim, however, be a moderately silky texture, added to the other material requisites of a favourite brand, I know not, experimentally, any manure comparable to the soil of our marshes. Lime, I have been given to understand, is better. In support of this opinion, it is said that Mr. Burden uses it extensively. The saline property of mud, is perhaps the agent which improves the staple of Cotton. From the representations of several of my friends, the reputation of their brands has increased, since the application of salt in small quantities to their composts; and from personal knowledge, I can state that I have readily sold Cotton, from land fertilized only with salt, at prices that I could not obtain for the residue of my crop.

Having thus freely communicated to you the important advantages of mud as a manure for Cotton, and advanced certain theoretical opinions of the manner in which it acts, it remains for me only to add a few remarks in relation to the kind and quantity to be used. All mud contains a considerable quantity of sand, yet the freer it is from that earth, the better. It should not, therefore, be taken too near the margin of the high land. If it adhere strongly to the hoe or spade, you may be satisfied of its clayey texture, and hence of its worth. There is a kind that resembles Indigo in colour, and is offensive to the smell, this, perhaps, is the most valuable. Whether turf mud, or that which is dug at the depth of one or more feet, is the more to be relied on, I am unprepared to answer. The former contains more salt, the latter more clay; vegetable matter greatly preponderates in the first. The following analysis of two specimens, for which I am indebted to the kindness and patriotism of Dr. Joseph Johnson, of Charleston, may not only afford matter of instruction to the intelligent planter, but no doubt will astonish many, from the large quantity of salt, as well as of sand which the best mud contains:

Analysis of Turf,*	480 grains.	Analysis of Mud,	480 grains.
Impure Sea Salt,	197 "	Impure Sea Salt	120 "
Vegetable Matter,	49 "	Vegetable Matter,	45 "
Sand,	129 "	Sand,	171 "
Clay,	105 "	Clay,	144 "
	480 grains.		480 grains.

This analytical view goes far to confirm my opinion, that the most valuable benefit of marsh mud are derivable from its saline property.

I have had occasion already to observe, that the quantity which should be applied to lands, depends on many considerations, to which I will now only add their proximity to the ocean. On the first year, it would, perhaps, be advisable to use twenty single horse-cart loads to the acre; afterwards ten loads, will, in general be sufficient; but if the land be low, the addition of a small quantity of some heating manure may be necessary. Where the ground is firm enough to admit the horse to walk with ease, the driver either fills his own cart, or is aided by an active negro.—Close observation has convinced me, that the former is the preferable mode. The work of the assistant is not returned by the increased facility of loading, nor in the greater number of trips which he is thereby enabled to make. On miry ground, a few planters prefer the making of a causeway of rails for the use of the cart, to the general plan of taking away the mud by manual labour. Where natural obstacles intervene to the profitable use of animal power, wheel or hand-barrows are resorted to, either to deposit the mud on the high land, or to remove it to the place for which it is designed. In the latter case, if hand barrows are used, the task of two negroes is to take out enough for the one-fourth of an acre. The general practice on this Island is to dig the mud after the hoeing season. The removal of it commences early in January—this done, the duty of procuring a further supply is resumed immediately subsequent to the preparation of the crop for market. If the mud has been long thrown up, where the distance does not exceed

* The turf-mud was taken two inches from the surface—the other, at the depth of a foot. They were specimens of the kind that I have used with great success for many years. So extremely tenacious is the property of this mud, that a considerable effort is necessary to dislodge it from the hoe; and yet it would seem that it contains a large quantity of sand.

† Four, five, or six loads to the row.

six hundred yards, an active carter can take out unaided, from twenty to twenty-two loads per day.

If the chief efficacy of mud lies in the salt which it contains, the alluvious matter of swamps and morasses, if slightly sprinkled with this substance, may prove at no distant period, of vast benefit to our agricultural friends of the interior of the State. Should future trials confirm this supposition, I need not say that it will afford me the most heartfelt pleasure to be informed of it.

Respectfully your's, &c.

WHITEMARSH B. SEABROOK.

NOTE.—*Take the following as an example:* “A farmer in the county of Sussex, some years ago, had a field, one part of which was very wet and rushy, and the grass produced upon it was of so sour and unpleasant a kind, that the cattle would not graze upon it: he tried several methods to improve it, but to little purpose: at last, having heard of the benefits of salt as a manure, he determined to try that; for which purpose he procured a quantity of rock salt, which in a random way, without any regard to the precise quantity he threw upon this rushy ground, fencing it off from the other part of the field; the first effect of which was, a total disappearance of every kind of vegetation. In a short time after, however, it produced the largest quantity of mushrooms ever seen upon an equal space of ground in that country. These, in the spring following, were succeeded by a most plentiful and luxuriant crop of grass, far exceeding the other part of the field in the richness of its verdure, and the quickness of its growth: the cattle were remarkably fond of it: and though the salt was laid on it *upwards of twenty years ago*, this part is still far superior to the rest of the field.”—*Appendix to Mr. Hollinshead's Pamphlet*, p. 33—35.

“Sea-Sand is very generally used in the county of Cornwall, for manure, and the quantity which is every season carried away from different parts of the coast, for the purpose of manure, almost exceeds belief. From Bude, in the parish of Stratton, it has been ascertained that in one day, as many as four thousand horse loads have been taken; and from the harbour of Padstow, it has been computed that fifty-four thousand cart-loads are annually carried.—*Dr. Paris's Memoir of the Transactions of the Royal Geological Society of Cornwall*, vol. 1.

Since the penning of this letter, I have been much gratified and instructed with several extracts from the writings of the most distinguished farmers of England, on the use of salt in agriculture. (See *American Farmer*, vol. v. pp. 249, 259, 260, 268,

269, 283, 284, and 291. See, also, letter from Judge Peters on the same subject—*American Farmer*, vol. viii. p. 340.) I know not, sir, that you could confer a more acceptable service on the agricultural community than to publish a part of the extracts alluded to, as well the essay accompanied with a drawing, on the water-cart—*American Farmer*, vol. v. p. 252.

ART. IV.—*On the Mortality amongst Cattle in Winter;*
by A WELL-WISHER.

Mr. Editor :—The great losses which our planters have sustained in their live-stock, from the continued severity of the last winter, should admonish them to make, by times, such arrangements as to prevent the recurrence of the same evils. It is a well established truth that live-stock cannot be supported upon rice-straw alone, during a severe winter ; and to those who have not witnessed the fact, it would appear almost incredible, what immense heaps of straw a small stock of cattle will demolish without any apparent benefit to themselves. If, then, our live-stock were plentifully fed during the winter, it must be evident that the accumulation of that *first of farmers' treasures*, manure, would fully compensate for the expense and trouble. I, therefore, would earnestly recommend to our planters to adopt some mode, by which to support, in comfort, their cattle during the winter. As far as my experience goes, I would recommend the Ruta Baga, or some other Turnip. As the culture of this root is not perhaps sufficiently known, perhaps you would confer a benefit on your readers, by furnishing extracts from Cobbet, or such authors as you may select.

Your obed't serv't,

A WELL-WISHER.

P. S.—On the subject of Manures, I send for your perusal, *Agricola*, and must request you to publish C. Alexander's letter to Sir John Sinclair, page 217.

Note, by the EDITOR.

We will cheerfully comply with our Correspondent's request, as soon as we can make room for the extract from

Agricola. In the second part of this number he will find the method of planting the Mangel Wurtzel, from a recent English work—we hope it is not too late for this year.

J. G.

ART. V.—*On regularly constructed Potatoe Cellars; by S.*

Mr. Editor:—Being much pleased with a house in which my crops of Potatoes were kept the last two years, I send you a description of it, in time for any person who may choose to make one of it for the crop which is now growing. The house is forty feet long, twelve feet wide, and eight feet six inches high, to the top of the plates; it is framed in the common manner of houses, built with posts set in the ground, roofed in the usual way, with good cypress shingles, railed, and weather-boarded with inch boards;* the posts are seven inches thick, with a groove near the inner edge, to receive puncheons about one inch thick, split like rice-barrel staves; between the weather-boarding and this, is a space of four inches, filled with well-tempered clay, forming a close wall, supported and defended from weather by the boards without, and puncheons within. One door in the middle of the southern broad-side—no other opening in the house. In the process of building, it will be found most convenient to complete the boarding, then drop in puncheons, to the height of twelve or eighteen inches; fill up with clay, well pressed in, and so on until finished up to the plate. Beginning at each end of the house, divide it by partitions across, six feet apart, made of grooved posts and puncheons, such as before described. When carrying in the Potatoes, leave one pannel of each partition open, to give access to the one nearest the end of the house, and close up as the several compartments are filled up to the plate.—Across the plates lay fence rails, or any other convenient support for a covering of dry grass, about two feet thick, thrown on loose, except between the shingles and plates, where it will not lie close enough, if not pressed in.

* How does our Correspondent guard against undermining, with a view to stealing?—*Ed. of So. Ag.*

Among the conveniences of this building, are the following: A man with a basket on his head, can enter and walk erect to any part of it. The compartments being narrow, they are filled to a proper height, without bruising the Potatoes, and by the regularity of their form, the contents may, with a few figures, be ascertained even more accurately than by the tedious process of passing them through a bushel measure.

The trouble of rebuilding, at least biennially, if not annually, which is necessary with all the various forms of what are called cellars, is avoided. The security against plunder is as perfect as a good door and lock can make any building; and what is of more importance than all, I have never had Potatoes keep better, if as well, in any other mode of putting them up, and I have tried various forms of cellars, banks, &c. not excepting that recommended in one of your numbers about six or eight months ago.

The last year my seed Potatoes were put up in the house described, and at planting time were found in a perfect state of preservation, when many of my neighbours complained of theirs being destroyed by the inclemency of the winter. Many people think air-holes, in Potatoe-houses, necessary; my opinion is different; at all events, the one in question is sufficiently ventilated through the covering of grass, which is proved by the door being closed as constantly as practicable, both to shut out cold air, and in compliance with a recommendation to exclude light from roots and vegetables when housed, which is to be found in Cobbet's *Year's residence in America*.

If, Mr. Editor, you think the publication of this will be useful, by giving it a place in your valuable work, you will at once extend such benefit, and gratify a well-wisher and subscriber.

S.

OBSERVATIONS BY THE EDITOR.

We have repeatedly requested information and communications on the common crops of the country, and therefore publish our Correspondent's letter with great pleasure, and with the greater, as we sincerely believe that one fourth, at least, of the labour bestowed on the provision crops of the lower country, is thrown away, from bad management, waste

and *plunder*. Certainly this is the case near Charleston.—We would observe, however, that we were told by a deceased neighbour of ours, that he had tried a brick Potatoe-house, with a framed and shingled roof; that in this his Potatoes rotted so much that he discontinued the use of it, resorting to the old common plan of cellars.

On the other hand, as his Potatoes were housed latterly in *the field*, two miles from his settlement, in badly constructed cellars, it is possible that his Potatoes in the brick cellar *at home*, rotted from very *natural* causes.

We heartily approve of every thing that saves annual or biennial labour, and above all, of whatever goes towards stopping the general system of waste and plunder in agricultural affairs.

J. G.

ART. VI.—*On Rice Threshing Machines; by A FRIEND TO IMPROVEMENT.*

Mr. Editor:—I was much pleased to find, by a public advertisement of Messrs. Birnie and Heriot, that they offer to contract to build various kinds of mills, and among others, Threshing Mills, and I invite the attention of enterprizing planters thereto. Whatever may be the difference of opinion among political economists as to the advantages or disadvantages resulting from the introduction of labour-saving machines, in countries where the population is dense, and where the division of labour is complete, in this country there can be but one opinion, which is, that every mode by which labour can be economized, and nature and art made to combine with man in producing beneficial results, a great and desirable object will be accomplished. Drawing our resources almost entirely from Agriculture, we cannot be too careful so to employ our labour as to produce the greatest results with the most economical means. Although this is a truth that few will deny, yet it is perhaps capable of demonstration, that there is a greater waste of labour in this than in most other civilized countries.

It is only within a few years that the plough, which has a date almost coeval with the origin of man, has been introduced amongst us, and its use even now, is very partial.

We generally trust almost altogether to the hoe. [Our threshing, which all must allow, when the crop is a heavy one, is a most tedious and laborious operation, is almost universally performed by the simple flail. No machine, therefore, can, at the present time, be more desirable than the Threshing Mill on our plantations, upon a cheap and effective plan, which will relieve our labourers from that operation, and enable planters to appropriate the whole of the winter months to the preparation of their lands, for the succeeding crop. As things now are, the time consumed in preparing the crop for market, is so tedious that the time for planting arrives before the planter is ready to go into his fields to carry on ditching, banking, &c. the consequence is, that all is hurry and confusion, and the lands are planted out of order and out of season.

The introduction of the Threshing Mill, has long been a desideratum, but, unfortunately, it has only been of late that it has been found to succeed. [It is to be hoped that the gentlemen on whose plantations it has been found to succeed, will furnish a statement of its operations, and that Messrs. Birnie and Shinie will furnish estimates upon so economical a plan as to enable the small planter to avail himself of these truly valuable machines. Could the threshing machine be introduced at a moderate cost, and could we pound our Rice on our plantations, the drooping spirits of the desponding planter would be revived, and a new and happier state of things be introduced ; and that this may be the case, is the sincere wish of

A FRIEND TO IMPROVEMENT.

OBSERVATIONS BY THE EDITOR.

There is a reason for the introduction of Treshing Machines in this country, which is not noticed by our esteemed Correspondent, and which is not generally thought of in the comparative calculations of manual labour and labour-saving machinery ; it is, that *threshing machines do not plunder Rice!*

This custom, which, like the use of the plough, "has a date almost coeval with the origin of the *black part* of mankind at least," would be very much prevented by substituting *one or two men*, with as many boys, for a whole gang

of negroes, half in petticoats, threshing before day, even if the machine did not in the first instance, perform as well as might be expected.

We will, with pleasure, publish any information from Messrs. Birnie and Shinie, or from any other respectable mechanic, relative to agricultural machinery; but we would prefer, in all cases, to see machinery at work, as we could then give an opinion on the subject at the same time.

Until threshing machines are generally introduced, they will not be improved upon, much less brought to perfection. If they could be adopted partially on all the large plantations, their faults would be discovered and rectified, by *those who use them*. At present, the projections of them are a good deal in the dark, from the improbability of trying them upon a scale sufficiently extensive.

J. G

ART. VII.—*On the Cultivation of the Peach; by HENRY INGRAHAM.*

Dear Sir:—In reply to your note, requesting me to inform you in what manner I treat my Peach Trees, I have to observe:—1. I never import my trees, having been uniformly unsuccessful. I bud on the common Plum (*Chickasaw,*) from year to year, say ten or twelve, so as to have young trees, to replace the old ones. I prefer the stock about three-quarters of an inch diameter, which they attain the second year, and bud in August, or earlier, if the sap is sufficient, as near the surface as I can, with a view (on transplanting,) to place the Plum stock as near the surface as possible. My reason for adopting this plan, is, in consequence of the great strength of the sap causing the bud to grow with such luxuriance, as to fall out from its own weight, and if not destroyed, makes an uncomely growth, the Peach stalk becoming much larger than the Plum on which it is budded.

Having once obtained a good stock of the best Peaches, with common attention, I am never without them. With regard to the treatment, I trim partially every year, according to the age of the tree. An old standard requires

much cutting down, as it produces more wood, which, if allowed to stand, will injure the fruit materially. I never thin my Peaches, (as some of my neighbours do,) for I am of opinion that the wind causes the superfluous fruit to drop, and I have frequently picked a ripe Peach from the side of one not half matured, which has in a little time been perfect. The greatest enemy our Peach Tree has to encounter in this climate, is a white worm, which perforates the bark near the surface of the ground, and not unfrequently under. I am undetermined as to the particular season they commence their depredations, but think they are in embryo in the fall, for their ravages are very visible in the spring, when the blossoms of the Peach put forth. The leaves which follow, bear evident marks of decay and ill health.—I have even in this late stage restored them, by applying the knife immediately to that part of the tree already mentioned; by scraping the gum, which invariably issues from the part affected, I have found the worm alive. This mode of destroying them, however, is attended with a risk of injuring the tree, and I have since adopted the plan of scrubbing my trees every fall (say October,) with soap and ashes, since which, I have never been troubled with them. I think the alkali from the ashes destroys the eggs of the worm—hence my opinion as to the season they are hatched. In addition to this, the operation cleanses the bark, and imparts a new vigour to the tree. You will, on a reference to Squibb's *Gardener*, (Mr. Hume has had a new edition printed,) find a remedy for this worm, which I put in practice, and thought it succeeded well for some years, viz: Digging a hole around the roots and filling it occasionally with urine. My Peach Trees suffered last year in consequence of my building near them, and being much bruised. I have, however, some which ripen from the 20th of June to November, buds from which, at the proper season, you are very welcome to. The large Peach alluded to in your note, ripens in August, and I have frequently had them to weigh three quarters of a pound.—Cobbet, in his *American Gardener*, writes from Long-Island, and asserts that Peach Trees never decay, and that by proper trimming, they may be made to produce fruit for a number of years; in short, “a Peach Tree never dies.” This I know from experience, is not applicable to our climate. A Peach tree, with every care bestowed on it, is on the decline in ten years, at least I have found it so. I have

at this age experimented on them, by sawing off the trunk near the ground, (say twelve inches,) and on its throwing out shoots, have budded on the new wood, and obtained fine Peaches the second year, but they produced good fruit but two years.

I have planted this year one acre of bearded Rice, on rich high land, to be cultivated with the Bull Tongue Plough, and an half acre in tide swamp, to be cultivated as Gold Seed with water. It will afford me pleasure to communicate the result, when at maturity.

With respect, your obed't serv't,

HENRY INGRAHAM.

To JAMES GREGORY, Esq.

ART. VIII.—*On the Fecula of the Sweet-Potatoe, and the Chickasaw Pea; by N. HERBEMONT, Esq.*

“Columbia, S. C. March 9th, 1829.

To J. D. LEGARE, Esq.

Dear Sir:—I have seen lately several accounts of fecula being made of the Sweet Potatoe, not only in the number for this month,* of the “*Southern Agriculturist*,” but in several other publications. I had for some time past, and before I knew of its ever having been tried, thought of giving a short report of my experiments in this; but neglected it till I saw the notice of its having been done in Malaga, where it is considered as a new discovery,† attributing to the fecula wonderful medical properties. I have no doubt, however, of its value as an article of food, particularly for weak and convalescent persons. How a manufacture of it on a large scale would be beneficial to the individual

* See page 145.

† About twenty years ago a manufacture of Sago, was carried on at Savannah, Georgia. It was made from the common red Potatoe, and was sold in London, where alone it was vended *as if made there*, at a great price. The manufacture in Savannah was kept secret, and in London, as the name of the root from which it was made, was unknown, it was considered as a very valuable article.—*Ed. of So. Ag.*

undertaking it, or to the country, by adding one item to its articles of commerce, I do not know; but if sale of it to any considerable amount could be affected, I do not know any country likely to supply it in greater quantities than this. If brought into general use, it would be a very great and beneficial addition to the stores for a sea voyage. Although I am late in coming out with my experiment, I am able to state, what no other has as yet done, the quantity of fecula obtained from a given quantity of Potatoes.

Last fall, as soon as the Potatoes were dug, I measured half a bushel of the early red-skinned Potatoe, and after having weighed it, found it to be twenty-eight pounds. They were small ones, and I presume large Potatoes would have weighed more, and yielded fecula in proportion. I had them rasped in water and well-washed, at least five or six different times in fresh water, till the fecula was perfectly pure and free from any fibrous or other extraneous matter. It was then dried and when fully fit to put up, it weighed four pounds, so that this kind of Potatoe yields one-seventh of its weight in fecula, and it is very probable that large Potatoes would yield much more. Not knowing the price it might be sold for, I cannot make the comparative statement of the profits, if any; but when I take into consideration that the Potatoes are considerably heavier soon after taking out of the ground, that a very considerable portion of them is usually lost by rot, in keeping them in the ordinary way, and that the process of extracting the fecula is by no means expensive, I must come to the conclusion, that if the fecula of one bushel of Potatoes sold for no more than the highest price of the bushel of Potatoes, and if any quantity could be disposed of, it would undoubtedly be advantageous to prepare it in the large way. A very simple and effectual contrivance, of which I have an engraving, for rasping any quantity, could be used, and its cheapness is such as to bring it within the means of every body. The fecula, would, however, most probably sell for, at least, double the price of the Potatoes; for, allowing, fifty cents per bushel, which is the most general price here, it would at least yield eight pounds of fecula, which it is presumable would sell at $12\frac{1}{2}$ cents per pound. Another small profit might be derived, from the manufacture, in the fibrous matter separated from the fecula, which is good food for cattle, hogs and poultry, and also

the first water, which contains a great part of the sugar of the Potatoe, might be boiled down to syrup, or sugar, or distilled into spirits.

Should it be desirable, I could send you a drawing of the machine for rasping the Potatoes, in time to have it inserted in your useful publication before the next crop.

I regret that although I furnished, last year, many persons with Chickasaw Peas, on the express condition of sending you an account of their experiments, not one has come forward to redeem his promise. I have, however, before me a letter from a very respected friend, whose circumstances prevented making a more extensive experiment than that which is here notified. He says:

“ The following is extracted from my notes on this Pea.

“ 29th April. Sowed in the field with the Cow Pea, the Pea of which the seed was procured last year from Mr. Herbemont.

“ 18th August. Began to cut Peas for hay. Measured forty-five yards of two adjoining rows; one the Chickasaw Pea, the other the Cow Pea, and I put the product of each by itself. 22d. The vines of both parcels so dry as to be housed in a large open building, though not sufficiently so to be put away. The Chickasaw Pea was an outside row. The growth has been simultaneous. Weighed the two parcels, the Chickasaw Pea, fifteen and a half pounds; the Cow Pea, seven and three-quarters pounds. The Chickasaw Pea is easier to cut and handle, as it grows erect.”

I am, respectfully, sir, your obed't serv't,

N. HERBEMONT.

P. S.—Since writing the above, I have noticed a query by Mr. George G. Hayers, as to a good substitute for clover as an enricher of the soil; and in your note, you propose the Cow Pea as having been successfully used in North-Carolina. I have also heard of its being used in this State with success. I never had it in my power to try the Chickasaw Pea for the same purpose, and have long since suggested its being made the subject of experiments. There can be no reasonable ground for doubting this Pea's answering this object in the same ratio of advantage, compared with the Cow Pea, as it does with it as to its yielding fodder, viz: About double the quantity, with the additional advantage of being “easier handled, as it grows erect.” Were I to try the experiment, I would sow it in drills, and not broad-cast. Seve-

ral reasons induce me to make this choice: 1st. Almost all our culture is in drills or beds, the growth of the Peas would, therefore, be more easily laid in the intervals where the beds are to be made. 2d. Much less seed is required, and I believe that about one quart of the Chickasaw Peas will be found sufficient for one acre, either for a crop of fodder, of seed, or for being turned in the ground for manure. Planting them in rows, at about ten or twelve inches from each other in the rows, I obtained from about a tea-spoonfull of Peas, half a bushel of them for seed, and the plants were proportionably large and leafy.

N. H.

OBSERVATIONS BY THE EDITOR.

We hope that some of Mr. Herbemont's friends will have paid sufficient attention to the Chickasaw Pea, to be able to give us some details *this year*. The observations of the friend, whose quotation from his notes he gives above, would be particularly acceptable. Do the planters in the upper country thus take notes? If they do, why are they not occasionally gleaned for the public benefit? No planter can intend such remarks alone for himself. We are confident they will not be kept secret; they have not the mark of *that school!*

J. G.

ART. IX.—*Southern Agricultural Improvement; by the EDITOR.*

We publish with infinite pleasure the following observations, taken from a Northern paper; they show progress in our cultivation in Indigo. But do not let us stop here; we *ought*, and we trust we *shall produce*, in South-Carolina and Georgia, better Indigo than can be brought to the New-York market from any other part of the world, in the same way as we have already produced *better and finer Cotton*. We have our *Burdens* and *Wilsons*, names well known abroad in the Cotton trade! Let us try for names as conspicuous in *Indigo*, in *Sugar*, *upland Cotton*, *Wheat* and *Flour*.*

“*South-Carolina Indigo.*—It was generally believed among the Indigo dealers (says the ‘*New-York Herald*,’)

* We particularly call the attention of our upper country friends to improvement in this article, for which there is a market in Charleston, and a more extensive one in the *neighbourhood*—we mean compared to the dis-

that the art of making Indigo was lost in this country, but from lots recently received from South-Carolina, by Messrs. Patridge & Colgate, 10 Gold-street, it appears that some of our Southern planters still retain the art in *considerable perfection*.* The quantity received by them is rather more than four thousand pounds, and a judge of the article doubts whether any other country, taking the range of the grades, can show a better assortment of strong consumable qualities. Some of the samples are very fine, equal to Bengal, at one dollar eighty cents per pound, and in all the grades the fractures are remarkably clean and free from foreign matter."

So much for one of our new staples! The desire of improvement is spreading over our country, and we hope will be followed up throughout every part of it, with zeal and energy.

From Barnwell district we have the following proofs of agricultural spirit, which ought to be imitated every where.

The specimen of Sugar spoken of, was sufficiently good to prove that the best could be made with practice, in more extensive operations; but even as it is, we assure the respectable society who sent it to us, it would be very saleable at its fair value.

In France they have succeeded in making Sugar from Beets equal to that from the Sugar-cane produced in the West-Indies. This was indeed a formidable undertaking, and would never have been entered into, *without the energy of a Buonaparte*. All the objections that can be made against our continuing to cultivate the Sugar-cane, have been made in that country against the Beet Sugar also, for there are men in all countries who are on the look-out for difficulties. The Count Chaptal has replied to some of them in these words:

"It has been objected to this culture that there has been poured into the trade of the country, Sugar of a bad quality. I do not doubt the fact; but that proves only that it was

tance that flour is carried by many West-India traders, to that part of the world. *We are behind many others in the quality of our fine flour*, and we make no efforts to get flour early to market. Our seasons being so much earlier than the Virginia and Maryland, we might not only have the first new flour in the Charleston, but in the West-India, and even Northern markets! Let us try for this, it will pay well!

* Why not *altogether in perfection*?

badly manufactured. For ten years, the Sugar which is issued from my manufactory is delivered, as it is made, at the same price as that of the Sugar Cane prepared to the same degree of fineness, and the slightest difference has never been discovered between them.

"It will be said that the greatest number of the establishments for this manufacture, which have been formed, have been forced to abandon it, after having suffered losses.—This is another fact which I shall not dispute. But I would observe that this new branch of industry requires, like all others, *some knowledge*; an apprenticeship; men instructed and habituated to similar operations; and it is not astonishing that every where all these qualities have not been united.

"*It is impossible to cite among all the different objects of industry which thrive, one in which those persons who carry it on, did so in perfection from the beginning.*"*—*Chimie appliquée à l'Agriculture.* Vol. ii. p. 464.

If the French have succeeded in making Sugar from Beets as good as the West-India planters from Sugar-cane, *which was quite a new art*, surely our planters can, from the cane itself, make Sugar as well as their own neighbours, *who have already done so*. We are not now to be told that this is doubtful—it has been done by many persons in Carolina, as well as in Georgia.†

Mons. Chaptal says that every new branch of industry requires an *apprenticeship*—that is, every thing has a beginning and must be tried. Can there be any difficulty in trying to make Sugar upon a small scale? Where the planter has planted for seed, and is unwilling to go to the expense of a mill to work by animal power, the canes may be cut into short lengths, and the juice beat out in a common plantation wooden mortar; while an iron pot, well scoured, or a copper washing kettle may be used to com-

* We hope this observation, so applicable to all agricultural affairs, will be remembered by every planter.

† See the Notice on the cover of our February number. The samples of Sugar sent us by Mr. Spalding, of his own, and Capt. Stockton's Sugar, were beautiful, and what was better, the grocers in Charleston declared them entitled to the highest prices. We beg such of our friends as make Sugar this year, to forward to us fair specimens taken from the bulk, and put up, if possible, in mustard bottles, (or other phials) well corked. We wish to forward them to Holland, in anticipation of a future market there.—*Ed. of So. Ag.*

plete the process. Any house servant accustomed to make black-berry jelly, can perform this operation, under the direction of the master. In these trials, and indeed in all cases, the molasses ought to be allowed to settle or run off.

We hope none will cultivate the Sugar as an entire crop.* Let this culture be introduced with caution, and in conjunction with Cotton. But we earnestly hope that every one who intends to carry it on, will plant some of the seed in the month of October, and in *well-drained land*, with the view of giving the fairest trial we can to this promising crop.

J. G.

"Barnwell Village, July 23, 1829.

To the EDITOR of the "SOUTHERN AGRICULTURIST."

Dear Sir :—By the request of the Farmers' Society, of Barnwell District, I have sent by the stage a sample of Sugar made in our district by Mr. Jno. Dortch, to whom a voluntary premium was awarded of five dollars. I am sorry that the sample is not a better one, but the peculiarly bad circumstances under which it was made, go to prove most conclusively to the planters of this, as well as other adjacent districts, how plain the process, how simple the machinery, and *that we lack nothing but energy* to carry Sugar-making extensively into operation, to the great comfort, convenience, and advantage of all. I am not prepared to give even an imperfect description of the mill that Mr. Dortch constructed for the purpose of grinding his cane, but am satisfied of its simplicity. The boiler was a common house pot, of ordinary size, and the Sugar was granulated by adding a small quantity of lime. Any notice you may think proper to take of this, and the inclosed agreement, will not only be gratefully received by our Society, but I confidently hope may serve as a stimulus to many others, in commencing the easy and profitable business of Sugar-planting. Mr. Dortch's Sugar-cane, measured something like four and five feet high, on an average.

The agreement is on a subject of general and vital importance to the middle and upper country. The

* In the principles laid down by Count Chaptal in his observations on "rotation of crops," (see Part II, of our last and present number,) there are reasons given for changing *Wheat* crops, which will, we think, apply to *Cotton*. We mean the increase of noxious insects! These observations of Count C. are not beneath the notice of the most able planters.

quality of Cotton is certainly susceptible of great improvement, or how comes it, as we are assured, that there are now lots in the State for which the owners have refused twelve cents, while eight, or eight and a half may be taken as the average price. This difference must be ascribed to superior culture and management, and not solely to the difference of soil. If improvement be practicable, this is the time for its introduction, when we are threatened with the entire loss of the staple upon which we now, and long have relied for support. It is confidently believed by many experienced planters, that much good may result from the scheme proposed; although too late in the season to affect any improvement in the culture, much may be done by attention in picking out the crop, and subsequent management. It is expected that competitors will either submit samples of the whole bulk of their crops, or select the superior Cotton in picking. By either course, the results will be advantageous, both to the individual and the public. By selecting the prime Cotton, choice seed will be procured for the succeeding crop, which is deemed important. It is said that much has been accomplished in the improvement of long-staple Cotton, by attention to seed, and why not as much be affected as to the short staple by the same means.

The proposed scheme is confined to our district, but similar associations may be formed in every district in the State, and by general and united exertions, this article, upon which the South has so long prospered, may be saved to the country. The culture can barely subsist under present prices, and upon the least further depression, it must be abandoned. The planters of the district are requested to come forward and subscribe; although the amount paid by an individual is small, from present prospects the premium will be handsome, and worthy of competition. A competitor will have nothing to do, but to transfer his claims to the premium to his overseer or driver, or to his hands, if he works but a few; and a little extra attention to the picking of his crop, even for one day, will repay him his dollar. With respect, I remain yours, &c.

JOS. E. W. DUNCAN.

Treasurer of the Barnwell Farmers' Society.

 For the agreement, see Part II, of this number.

PART II.**SELECTIONS.****ART. I.—*On the Culture of Mangel Wurtzel; by S. L.***

[FROM THE BRITISH FARMER'S MAGAZINE.]

Sir :—I will endeavour to state the means which I have used for the purpose of obtaining a crop of Mangel Wurtzel, and also my method of storing the roots, feeding cattle with them, &c. I am not prepared to say that mine is the best plan ; but I have been able to grow fair, and I may say good crops, on land where, at one time with another, there never was raised above half a fair crop of turnips.—The advantage derived from keeping an additional quantity of live stock, &c. I need not take up your time in pointing out.

Soil.—What is termed soft land, and land lately broken up, answer best for the growth of Mangel Wurtzel—such land, in fact, is as easily penetrated by the small roots or fibres of the plant. On strong clay land, it requires the greatest attention in the tillage, hoeing, &c. and after all will not yield so large a produce as on land intrinsically much inferior, but less tenacious, and more permeable by the roots.

Variety best adapted to field culture.—Among the numerous varieties of Mangel Wurtzel which I have seen cultivated, I should recommend that with a green leaf, the foot-stalks being tinged with red, the exterior of the root also red, and when broken across, exhibiting concentric circles of red and white. I do not possess sufficient chemical knowledge to be able to say what sort yields the most fattening matter in proportion to size, but as a farmer I can state, that the sort recommended above, will, under the same management, yield by far the heaviest crop. Last year, from the dearness of the seed inducing the merchants to sell, and in scarcity obliging the farmers to buy, any thing bearing its

shape, many fields were planted with seed which produced a crop not worth the tillage.

Preparation of the land and putting in the seed.—As Mangel Wurtzel requires to be sown early in the spring, it is advisable to give the land intended for it, one or two ploughings, &c. in the autumn, and to lay it up on ridges for the winter. By this means the land may be got in good tilth before sowing, which for this and every similar kind of crop is one of the main essentials to success. The seed is sometimes drilled or dibbled on ridges wide enough for four or five rows of plants; I should, however, prefer the Northumberland, or two-furrow system, first opening the ridges with the plough, then setting on the manure and spreading it in the furrows; the ridges previously made are then split down and the manure covered. By following this plan the manure is deposited exactly in the situation most beneficial to the plant, besides the greater facilities afforded to the operations of the horse hoe. A light roll is passed over the ridges before depositing the seed.

Although it is possible to procure good crops from drilling, still I consider dibbling to be the most certain method; in either way care should be taken not to put the seeds or heads too deep in the ground, an inch of mould above them being altogether sufficient. To prevent the dibble penetrating too deep, a circular stop may be attached, extending an inch on every side. A gentleman with whom I am acquainted, last year used a wheel, with dibbles attached to the circumference at the desired distance, and it answered very well.* The greatest care is necessary in superintending the dropping of the seeds, or rather heads, that one only may be put in each hole; each head, if good, will produce from one to four plants. When I first commenced growing Mangel Wurtzel, I put in the seed at the distance at which I considered the plants ought to stand in the rows, (from fourteen to sixteen inches,) but as from various causes many of the heads did not produce a plant, I found many breaches and vacancies in my crop; these I endeavoured to fill up by transplanting from those places which produced more than one plant, but the transplanted plants never repaid the trouble, producing only a quantity of top, and instead of good roots

* See pp. 153 and 156, of this vol.—*Ed. of So. Ag.*

fit for use, only large fangs extending in the ground, and sometimes bidding defiance to the unassisted strength of a man to pull them up. This I attribute to the *tap* roots being broken in pulling them up for planting, and to the young plant being necessarily set deep in the soil, thereby occasioning it to send forth a number of fibres on all sides, instead of increasing the main root. I have for some years dibbled the seed at the distance of seven or eight inches in the row, cutting up every other plant with the hoe if the seed should all grow, and I have found the plan answer extremely well, insuring a full crop, and saving the expense of transplanting, which amply pays for the extra seed used. About three pounds may be considered as the proper quantity of seed for an acre, if dibbled; if drilled, a somewhat larger quantity will be required.

(*To be continued.*)

ART. II.—1. *On the Science of Agriculture; by JOSEPH HAYWARD.* 2. *On the Science of Horticulture, comprising a Practical System for the Management and Training of Fruit Trees; by the same.* London. 2d edition. 8vo. 1824.

(Continued from page 379.)

OBSERVATIONS BY THE EDITOR.

Before we lay aside Mr. Hayward's treatise on agriculture, which we do with a strong recommendation, that it may be taken up by as many of our country friends as can meet with it, we will give one more extract from this excellent work; it is on manuring, concluding with a fact in favour of top-dressing, or manuring on the surface, the truth of which is known to all of us in this country, and which every planter can confirm from his own daily experience.

The speedy and inevitable decay of fence-rails, weather-boarding, sills or blocks of houses, or whatever timber comes in contact with the surface of the ground, is familiar

to us all; the rotting of fallen trees in the wood, when laid flat on the earth, and numberless other instances to which we are daily accustomed, show us that vegetable matter hastens with a greater rapidity to decay in this, than in any other situation. While the durability of stumps, roots or timber under ground, especially in wet land, will satisfy every candid mind, that Mr. Hayward is correct in principle.

From the volume on Horticulture we have continued such selections as complete the mode of managing Peach and other fruit trees, as far as our limited pages will permit; and we hope that the efforts to get superior fruit, which appear more remarkable this year, probably from their having gained greater publicity, will be continued. The climate of Carolina and Georgia is evidently that of fine fruit, and those who wish to have it in perfection, have only to devote a little time, and make the sacrifice of some slight labour, or care and attention on their gardens or orchards, to procure as fine as can be produced in the world. We are wrong, something more is yet wanting, without which no fine *ripe* fruit will ever be procured in Carolina, at least near Charleston—we mean fences and locks impenetrable to the negroes of the family.

Those who will make these fences, as they are forced to do in other countries, may read Hayward on Agriculture to advantage. Those who plant trees, of which their servants have the power to gather the fruit, may rest satisfied that it is a waste of time to look for information any where!

"If we were to suppose, that a difference in the quality of the food supplied to plants, produced no difference in its effects; or that the roots possessed the power of selecting the exact quantity and proportion of each principle, required for its particular purpose, from any composition that may be presented to it; we should be driven far off from accounting for the diseases of plants, or for the difference in the size, substance, state, and condition of plants of the same species, when growing in the same situations; and, although we are justified in believing, that a plant having taken in its food in a compound state, possesses the power of dividing and appropriating the different parts to its different purposes, it must be obvious, that any unnatural obstruction to the due exertion of those powers, or any improper substance being taken into the system with the food, must be followed by disorder, disease, and destruction.

"Most people are aware that the *quality* of the food consumed by animals, is equally as determined in its effects, as the *quantity*,

and such is the case with vegetables. When an *animal* is constrained to live on meagre, impure food, or that, wherein a small quantity of nutriment is diffused or blended with a large insipid mass, it is induced to consume a greater quantity, to make up for the want of a more concentrated quality; and the consequence is, an extension of the stomach and bowels. But although the animal in this condition, appears large in bulk, it possesses little solid value, and less strength to bear up under against the additional weight: and such is the case with *vegetables*; their stalks, branches, and leaves, are the organs for the reception and digestion of the food; and whenever they are glutted with meagre food, a large extension of the leaf and branches follows, but in this state these possess little substance or value.

"That some plants are more voracious than others, and that they sometimes, like some animals, feed on gross impurities, is distinctly proved by the flavour of esculants, and particularly the cabbage tribe: thus we find that sea-kale, growing in rank manured beds, is so gross and bitter in flavour, as scarcely to be eatable; whilst that which is grown in a pure natural soil, is sweet and delicious.

"Certainly, we cannot pretend to the powers of determining and measuring out the exact proportions of the required elements; but we may, by a little attention, be able to counteract and avoid extremes.

"It appears throughout nature, that the efforts of a plant, from its first establishment, is directed to acquire the proper state and condition to propagate its species; and that in its seeds and fruit is comprised its concentrated essence. We may therefore estimate its powers and efforts to be in proportion to its wants; and hence we may suppose, that as starch, and sugar, contain a large portion of oxygene, and a small portion of hydrogene, that those plants whose desired products consist of such substances, should be supplied with food containing a large portion of carbon and oxygene; and as oil contains a large proportion of hydrogene, and no oxygene, that to those vegetables, whose seeds produce oil, a supply of food should be given, containing a large portion of hydrogene and carbon.

"On these grounds, admitting carbonic acid and carburetted hydrogene to form the food of plants, we come to the following conclusions. Those substances and that mode of preparation, which produce carbonic acid, and carbonaceous oxydes, constitute the best food, and the best state for all plants producing grain and pulse; and surpass also, the best adapted for clovers, grasses, &c., for feed and for hay: as the quantity of saccharine matter they contain, determines their value, and not the bulk, which alone would be increased by carburetted hydrogene. For those plants whose seeds produce oil, such as hemp, flax, rape, and all the cabbage tribe, carburetted hydrogene may be

well adapted. We find those ideas corroborated by natural and practical results: thus, seed crops of grain and pulse are always most healthy and prolific on lands that have been treated in that manner, and left in that state, in which the roots are the most completely freed from those substances which produce carburetted hydrogene gas; and hemp, rape, turnips, cabbages, &c., from their peculiar form of growth, are enabled to sustain a large and extended surface, and can therefore appropriate a large portion of carburetted hydrogene without injury.

"A due attention to these particulars will explain the want of accordance in the opinions of Sir Humphry Davy, with many of the operations that are most successfully practiced by many eminent farmers. Indeed, if the food of plants was wasted, by exposure to the atmosphere; ploughing and stirring up the soil must occasion waste and sterility; and the same must be the case with turning over, and exposing masses of dung; but, observing practitioners well know that those processes are followed by additional prolificacy.

"That class among the cultivators of plants, who, of all others, pay the most attention to their health, and proper condition for fructification, is, perhaps, the florists; and the most eminent amongst those, make it their practice to mix and turn over their compost at short intervals, so that every part may be exposed to the influence of the sun, air and light, for at least twelve months before they use it.

"The fact is, I believe, that whether carbon and oxygene combined, as carbonic acid, be the best state of preparation for the consumption of plants, or not; carbon and oxygene form the grand essentials for making them prolific; and when vegetable and animal substances are laid on the surface of the soil they are intended to enrich, they are in a situation best calculated for decomposition, by oxydizement; for then, as they are reduced to a soluble state, they are dissolved by water, and carried to the roots; and when there is not moisture enough to carry down the soluble part, it lies dry on the surface; and whilst dry, as Sir H. Davy observes, no fermentation can take place; and thus circumstanced, under the alternate state of wet and dry, the decomposition is gradual, complete and rapid. *This may be observed by a stake of wood, that has been sometime fixed into the earth; for that part which is under the earth, and that which is in the air, will remain sound, long after that part which is between both, or on a level with the surface of the earth, is completely decomposed.*"—Hayward on Agriculture, pp. 135 to 141.

Of Fruit Trees.

"In the removal or transplantation of trees, gardeners and nursery-men are generally very careless and inattentive in taking them up, and care not how much the roots are broken or lessened;

ed in number, provided they have enough left to keep the tree alive: * the consequence is, that although the branches left on, may remain alive, there is so great a deficiency of sap, from the loss of roots, that the vessels cannot be filled the following spring; therefore they contract and become inflexible, and after one or two seasons are incapable of extention; so that when in the course of time the roots are restored and the sap supplied in the usual quantity, it is, from being restricted in its former course, impelled through the nearest vertical and accommodating buds that offer. p. 124. And although these shoots may be rubbed off, still they form again in the same place, and it will be in vain to attempt to support the original branches.

"A regular head cannot be formed, but by a removal of the entire old one: and frequently the vessels of the trunk itself become so fixed and stubborn in the bark as to force the sap out into luxuriant branches near the root. p. 128.

"If plants are raised in such a manner that they may be removed with the whole of the roots entire, and without being curtailed or injured, the full benefit of a needful age and progressive growth and extension of branches may be transferred from the nursery ground to the garden or orchard, and no loss of time incurred; and this is easily affected when the soil is light, or it may be provided for, either by having the beds prepared with a stratum of light open earth for the roots to run in, as hereafter described, (See p. 277, of last number,) or more perfectly by raising the plants in pots. p. 129.

"If apricots, peaches, plums, and all dwarf trees, are raised in pots of about fourteen inches in diameter and depth, such trees may be trained two or *three* years, to the full extent of their growth,† and in proper shape, and be then transplanted, without receiving any check or occasioning loss of time.

"A peach or nectarine tree thus raised, and trained as herein-after directed, may be removed the third autumn after budding, and the following summer produce several dozens of the finest fruit; the next year (the fourth) twice the number: and the fifth year, upwards of *forty dozen*; and these are certainly advantages sufficiently great to counterbalance a trifling additional expense.

"It will also answer as good a purpose to raise apple trees in the same manner: for when the roots of these trees are diminished or injured, they require a long time to recover the loss—*indeed few more so*—and after repeated transplantation, they seldom form handsome or healthy trees. p. 130.

* See Mr. Ingraham's observations on raising his own trees, in this number. The subject is deserving the attention of *Northern nurserymen!*—*Ed. of So. Ag.*

† This is not possible in the Southern States for three years; but good hints may be derived from Mr. Hayward's instructions.—*Ed. of So. Ag.*

" As to the mode and manner of performing the different operations of budding or inoculating and ingrafting, &c, I shall not attempt to suggest any improvement of the general practice; but it will of course be necessary, that the stock should be sufficiently recovered from its transplantation, and have taken good root, before it is operated upon. p. 131.

" When budded trees are intended for standards,* one shoot only must be suffered to grow, and this carefully trained up, so as to continue rising from the point bud; and when stocks are grafted for standards, such grafts should be selected as have the point bud perfect, and the shoot produced from this should be carefully trained up and continued from the point bud.

" When necessary to shorten the graft previous to its insertion, it should be done from the lower or largest end; and if the grafts that are used have not the point bud, one shoot only should be suffered to grow, and this fixed as perpendicular and straight as possible.

" When grafts have taken to the stock, and have grown a few inches, they should be unbound and fastened, if necessary to stakes, to prevent their being blown off, and all shoots except the leading one taken off.

" If no accident happens, these will require no other labour for two or three years; the point buds will naturally keep the lead, and in most kind of trees form a straight and handsome stem.

" Whilst the leading branch maintains the ascendancy, the side branches of the second year should remain on; they serve to strengthen and increase the size of the stem in a conical shape, until it has attained its utmost height, which should be about six feet, and this it will generally do the second or third year.

" When a tree has attained its proper height, all the side branches below those intended to form the head, should be removed close to the stem; and when the stem is grown to its due height, which if left to nature, will be determined according to the soil and situation in which it is placed, the buds that run immediately about the point of the annual leading shoot, will generally form a circle of branches at the end of each year's growth; and those branches naturally arranged in regular tiers, and at proper distances, adapted for bearers of their different kinds of fruit.

" Therefore with trees raised in this manner, no branch will ever require to be shortened, the plant will progressively increase, and, as soon as it attains its proper extent of surface and age, will bear fruit, and which will generally take place much earlier than with trees that are headed back.

* In England the climate being unfavourable for the peach, the trees are generally trained on brick walls, "*en espalier*." Those which are allowed to grow unsupported, are called "standard trees."—*Ed. of So. Ag.*

"As the central or leading buds and branches are liable to be broken by accident, or destroyed by insects, it will be necessary to look over the grafts occasionally, and if two or more shoots are contending for the lead, all must be removed except the one that is best situate for continuing the stem; or if any of the leaders grow reclining, they must be fastened in a proper position, to stakes." pp. 133 to 135.

"When it is desired to change the fruit of any young tree, it is better to insert one branch or graft only in the stem, with the point bud perfect, unless for greater certainty, two be inserted, in which case, one should be removed as soon as the other has securely attached itself to the stock.

"With a large tree of one or more tiers of horizontals, it will be as well to insert a graft on each horizontal as well as the stem; this will be gaining time. The best shoots for grafting, are those short and strong ones, which have a wood bud at the extremity, and are generally formed at the ends of the bearers." p. 170.—*Hayward on Horticulture.*

ART. III.—*Chimie appliquée à l'Agriculture; par M. LE COMTE CHAPTAL. 2 tomes; à Paris, 1823.*

(Continued from page 381.)

On Rotation of Crops.

"**THIRD PRINCIPLE.—*Plants of different kinds do not exhaust the soil in the same manner.***

"The roots of plants of the same kind, or of the same family, penetrate the soil in the same way; they penetrate to an equal depth; they spread to a like distance, and exhaust the whole spot which they occupy as far as they can reach.

"The roots are more subdivided in proportion as they are lodged near the surface, and occupy less extent of ground.

"If they are tap-rooted and plunge to a great depth, they throw out few lateral fibrous roots from their surface, but go deep to seek nourishment to sustain the plant.

"I have often had proofs of what I advance, but I will only give one example. When a turnip or a beet is transplanted, and the point of the tap-root is cut, being unable to penetrate deep into the soil to draw its nourishment, it covers all its surface with fibres which extend to a certain distance, and take from the

first layer of earth, the nutritive juices which are contained there. The root itself grows round, instead of long.

“Plants then only exhaust that part of the soil which their roots are able to reach; and a tap-root can find abundance of nourishment in ground of which a plant with superficially spreading roots, may have exhausted the surface.

“The roots of plants of the same, or of a similar kind, take always the same direction in any soil which permit them full freedom. They run through and use the same stratum of earth: hence we seldom see trees, which succeed other trees of the same kind, thrive, unless a sufficient time is allowed to decompose the roots of the first, and to impart a new fertility to the stratum of soil.

“In order to prove that the different kinds of plants do not exhaust the soil in the same manner, it would be sufficient perhaps to observe, that the nutrition of vegetables is not an effect purely mechanical; that the plant does not absorb indifferently, and in the same proportions all the salts and the juices which are presented to it, and that whether its vitality or the confirmation of its organs influence the nutritive action, there is on its part, taste and choice; this is sufficiently proved by the observations of Messrs. De Saussure and Davy. Thus, for plants, as for animals, there is food common to all, and particular food for particular kinds. This truth is put beyond a doubt, by the choice which plants make of certain salts in preference to others.”

“FOURTH PRINCIPLE.—*All plants do not give back to the soil the same quantity nor the same quality of manure.*

“The plants which vegetate on a soil, exhaust more or less the nutritive juices; but all leave there spoils which repair in some measure these losses. The fairnaceous and the oily are placed at the head of those which restore the least. In those countries where they take away the plants, they absolutely return nothing to the ground, which has nourished them.

“Other plants which seed on the ground, consume, it is true, a great part of the manure which is put there: but the roots of some of them stir the ground to a great depth; they cover the surface with leaves which detach themselves from the stalk during the progress of their vegetation, and these return to the earth more than the others.

“Others preserve after the production of their fruit, very strong and succulent stalks and roots, which by their decomposition, restore to the soil a part of the juices which they have absorbed; some of the leguminous are of this kind.

“Several plants which are not allowed to run to seed, exhaust but little. These are very precious in a rotation of crops, pro-

vided the same ground can produce them during a length of years, without the aid of new manure. Clover, but above all, lucerne and sain-foins are of this kind.

“FIFTH PRINCIPLE.—*All plants do not equally produce foulness of soil.*

“A plant is said to pollute or foul the soil, when it facilitates or permits the growth of noxious plants which exhaust the ground, and are hurtful to useful plants, consume their nourishment and hasten their destruction.

“All plants which are not provided with a vast system of large and vigorous leaves which cover the soil entirely, produce foulness.

“The farinaceous are in the first rank. Their slender stalk, which raises itself into the air, their long and slender leaves, admit easily into the intervals amongst them, herbs which can grow up on the soil, and they present even a friendly shelter for them against the winds and the heat; in a word, they promote their growth.

“Herbaceous plants, which cover with their leaves the whole surface of the soil, and whose stem raises itself to a convenient height, choak, on the contrary, every thing which attempts to grow at their root, and the ground remains clean.

“It must be observed, however, that this last effect takes place only as often as the soil suits the plant, and *as it is provided with sufficient manure* to furnish a strong and healthy vegetation; for, for want of these favourable dispositions, we often see these same plants languishing, by degrees overcome by plants less delicate, and perish before their time.

“Plants sown and cultivated in drills, as for instance roots, and the greatest part of the leguminous tribe, leave between them large intervals, which are filled with weeds; but the soil is cleansed by repeated hoeings, and by this means it is kept rich enough in manure to receive another crop, above all when the plant does not go to seed.

“The seeds of noxious herbs are often mixed with the good seed sown in the earth: and too much pains cannot be taken to cleanse these latter; more frequently they are carried by the wind, deposited by the waters, or sown with the dung of animals and with manure.

“The improvidence of those agriculturists cannot be sufficiently reprobated, who leave in their fields thistles and other noxious plants; every year these plants reproduce on the soil new crops, which exhaust it, and multiply to such a degree, that it becomes at last impossible to purify the ground from them.—Some carry their negligence so far in this particular, as to reap the grain all round the thistles, and leave them standing; as if to

permit them freely to accomplish their full growth: how beneficial would it be to cut down all such plants before they flowered, and thus destroy them in order to add to the manure of the farm.

“From the principles which I have just laid down, the following consequences may be drawn:

“1. That however well prepared a soil may be, it cannot support a long succession of crops, of the same kind, without being exhausted.

“2. Every crop exhausts the soil more or less, in proportion as the plant which is cultivated there restores more or less to the ground.

“3. Tap-rooted plants ought to be made to succeed to those which have spreading or superficial roots.

“4. The too quick return of plants of the same or similar kinds, must be avoided on the same field.*

“5. Such plants as pollute or contaminate the soil must not immediately follow each other.

“6. The cultivation of plants which draw their principal nourishment from the soil, ought not to take place until that soil is sufficiently manured.

“7. In proportion as a field is exhausted by successive crops, such plants as restore to the soil the greater quantity of manure, ought to be cultivated.

“These principles are established from long experience, they form the basis of an agriculture, rich in products, and above all, economical in labour and manure; they ought to serve as the guide of cultivators: but their application ought also to be modified according to the nature of soils, the variety of climates, and the wants of each division of a country.

(*To be continued.*)

* We hope that Cotton planters who lose their crops by Caterpillars, and other insects, will pay attention to the following remarks:

“Independently of the reasons which I have here given for not permitting plants of the same species to succeed each other, there is another, which I will now mention.

“M. Olivier, member of the Institute of France, has described with care all the insects which devour the upper part of the roots of farinaceous plants, and which multiply to infinity, when the same soil presents to them for years in succession, plants of the same or of similar kinds; *these insects perish* as often as vegetables are cultivated, which cannot serve for food for their larvae,” [that is, when a rotation of crops is adopted.]

These observations are of infinite importance, and if the facts here stated are taken in conjunction with the injudicious use of manures in a state of fermentation, in Cotton-fields, an explanation may be found for the destruction of so many crops by insects, and by diseases which probably are produced by insects, although imputed to other causes!—*Ed. of So. Ag.*

PART III.**MISCELLANEOUS AGRICULTURAL ITEMS.***The Kitchen Garden for September.*

With a view to assist in introducing real economy, as well as abundance and comfort into the family of every Southern planter, we shall give a Gardener's Calendar in future, at the end of each month, until we have completed the year; and we shall add such observations as our own very limited, or the better experience of our readers, who will contribute to this useful department, may suggest as we go on.

This is the season to lay the foundation for a well-provided garden, during the winter and spring. But so little attention has been paid to gardening in the south, that this indispensable part of plantation and domestic economy, is rarely, if ever, sufficiently fenced in. Sheep, hogs and cattle ought not merely to be prevented from breaking through, but the fence ought also to be so constructed as to keep out all intruders whatever.

The most secure fence is, a ditch and bank; the former four feet wide at top, eighteen inches wide at bottom, and two feet deep; the bank formed inside, neatly sloped from the bottom of the ditch. On the top of this, a fence of three feet pales, or even shingles set close, and a little into the earth, will effectually keep out every thing, but the negroes. If the *rosa multiflora*, or nondescript, is planted inside, close to the foot of the bank, and, as it grows, is laid over, and made to hang on each side of the fence, it will prove a good defence against all depredators. Every effort ought to be made to keep out rabbits, which destroy early peas, and other delicate vegetables, and often breed in the inclosure itself. (*Draining will be treated of hereafter.*)

General Observations.

Whatever may be the shape or size of the garden, let the compartments be laid off in right angled figures. As far as you can, adopt one general plan and width of beds and alleys, and having laid them off carefully, by measurement, drive cedar or light-wood stakes at the corners of all the beds or alleys, flush with the ground, as future guides to your gardener. Let the same

kind of stakes be set in at the corners of your walks and borders; if driven in level with the surface, will they not be seen, but may always be found out when wanted. The first arrangement of this plan is troublesome, and takes many stakes; but saves much time and trouble in the end, and preserves regularity. Let your garden be as near your dwelling as possible, and if the soil has faults, endeavour to rectify them by degrees. It is sooner done than can be imagined.

Sow every thing in drills, and nothing broad-cast. The first can be hoed, the last must be hand-picked. Good spading is the foundation of good gardening. Well rotted manure, often turned, and the surface exposed to the air and light, insures good crops of *sweet-tasted* vegetables. Fresh stable manure, and even fresh cow-dung, not only produce destructive insects, but coarse, flabby and ill-favoured crops. Every crop ought to be manured; but if you are pushed for time and have not got prepared manure, scrape off the *soil* from a cow-pen, the older the better; make your drills rather large, and fill them with this soil. In this sow your seed, cover up thin with the common earth of the bed, and rake the surface smooth and level. Even if your peas, onions or any other vegetable are backwards, by scattering some of this refreshing earth from an old cow-pen, on the surface, *by way of a hauling up*, having first stirred the earth of the bed a little, it will be found to be of the greatest service in advancing the growth.

 *In this month,*

Sow peas, turnips, beets, onions, carrots, spinach, radishes, cabbages, endive, lettuce, cresses, mustard. *Transplant* cabbages, endive, cellery, and lettuce.

Peas

Are, in our opinion, not worth the trouble of planting at this season. The early are the only kinds which can come to maturity before winter, and there is a great risk of total failure. We planted them regularly for years, and only once got one or two fanner-fulls, before the general planting for the spring. Those who choose to try, will follow the directions we give from *Abercrombie*.

"The best sorts to sow now, are the Charlton hot-spur, golden hot-spur, Reading hot-spur, &c., but the two first are the earliest. Sow each sort in rows at three feet distance, and in drills about an inch and a half deep. If the beds are narrow, sow only one drill. Sow the peas moderately thin and regular, and directly earth them over, not more than an inch and a half deep.

Turnips,

Sow in drills, nine inches apart, as thin as possible, raking the earth lightly over the seed. Thin off, as they require it, and as soon as the plants are an inch and a half in diameter, thin and eat, so as to leave nine inches or more between the plants for them to come to full size. Turnips ought to be sown in succession once a month, or oftener, according to the size of the beds.

Beets.—(See page 368, of last number.)

Onions,

Sow in drills nine inches apart, as thin as possible, and rake the earth lightly over the seed. When the onions are four inches high, let them be thinned by drawing carefully. Have on another bed, drills prepared to plant them in, about an inch and a half deep, the seeding plants must be set in those drills, at six or eight inches apart in the row. None must be lost; cover up lightly, and press the earth down gently with the foot. If the weather is dry, water. Chop the earth round the original plants, which ought also to be left six or eight inches asunder in the rows.

Carrots

Will not grow to advantage in any land that is not well spaded and manured with well rotted manure. The preparation of the ground in stiff clay soils for tap-rooted vegetables, is attended with some trouble, (*of which hereafter.*) Sow in drills nine inches to a foot apart, extremely thin, as directed in turnips.—Thin as they increase in size, and use this and every vegetable that can be used when not fully grown, as you thin them. They ought to be thinned until they stand three, and finally nine inches apart.

Spinach

Is one of the most useful plants in a country garden, for it helps greatly the consumption of another country article, namely, eggs. It ought, therefore, to be raised in abundance, more especially as it stands all but the hardest frosts, and affords abundance of seed for the next year.

Spinach ought to be sown in August, or early in this month, in drills at nine inches. Those who wish to have it all the winter and spring, ought to sow in succession once a fortnight, or three weeks. Sow very thin, and begin to use as soon as the leaves are of sufficient size; pick only the largest leaves, and be sure to save abundance of seed in the spring. As the warm weather comes on this plant goes quickly to seed.

Radishes

May be sown any where amongst other crops, namely, along side of peas; in the same drills with spinach, (very thin,) or with

carrots ; in fact any where except with the onion tribe. Sow thin, in drills, but let the bed be well spaded and soft. Every ten days, where they are used abundantly, a fresh crop ought to be put in the ground. Begin to eat them as soon as they have a flavour.

Cabbage Seeds.

Early York, sugar-loaf, and drum-head, cabbages, ought to be sown for spring use, in a well manured bed.

Endive and Lettuce

May be sown with carrots or spinach, or in a small bed mixed with the cabbage seeds, in drills, very thin, and from thence transplanted.

Cresses and Mustard,

Called small sallading, should, when a constant supply is wanted, be sown once a weed or fortnight, in a well prepared border, observing to draw some flat shallow drills, three inches asunder. Sow each sort separate, and cover them lightly with fine earth ; if the weather is dry, *water well*. When they begin to come up, if the earth is caked, whisk it lightly with the hand, or crumble it with your fingers.

In Germany, the mustard used at table, is made at home by beating the seed in a mortar and sifting. It is not as strong as the Durham mustard, but is very agreeable. We should like to see this custom introduced in the South. In this case, sow the brown in a larger bed, thin, to give plenty of air, tend it well, and let it go to seed.

Transplanting

Is best done in wet weather, or after showers of rain, but it may be done in common sized gardens at any time, if the following directions are attended to. Have ready a small hoe, three or four inches wide, with a handle ten inches long ; a pigging of water with a calabash ; and a basket of perfectly well rotted manure. Mark off the distances for the plants, according to the nature of their growth. When the plants are ready, chop with the hoe into the ground, until it is completely pulverized in a spot large enough for the plant ; mix manure sufficient with this soft earth, and pour in water enough to make a puddle by stirring up well, with the hand. Into this set the plant, and if in hot weather, shelter it from the sun for some days, by setting a few sprigs of pine or other bushes around it. This is particularly useful in setting out tomatoes plants.

The larger cabbages ought to be planted three feet apart, the smaller two, to two and a half; endive at a foot distance, and the Dutch lettuce nine inches. All these require rich beds, but their flavour will be destroyed by fresh manure. J. G.

LAUDABLE AGRICULTURAL AGREEMENT.

(See page 415.)

"Barnwell, July 20, 1829.

The undersigned being desirous of improving the quality of short staple Cotton, do agree as follows:

That they will each pay to the Treasurer of the Farmers' Society of Barnwell District, the sum of one dollar, and that the total amount so paid shall form a premium to be awarded as hereafter stipulated.

That a fair sample shall be selected from the crops of the subscribers, respectively, from parcels of not less than five bales, by any disinterested person.

That the several samples so selected, shall, on some convenient day after the 20th day of March next, be submitted in Charleston to the inspection of three competent judges, to be chosen by the subscribers or their agents.

That the judges so chosen, shall award the said premium to the person whose Cotton shall by them be adjudged to be the best—all those qualities which constitute or enhance the value of the article being taken into consideration.

That the judges be respectfully requested to certify their award, and annex thereto such remarks and suggestions on the culture and management of short staple Cotton, and on the particular samples that shall be exhibited, as shall occur to them.

That the competitor to whom the premium shall be awarded, will be expected to communiate to the Farmers' Society, a detailed statement of his course of culture and management.

That this premium is confined to crops of the present year, cultivated in this district by the competitors themselves.

That no subscriptions will be received after the first day of January next: at which time public notice shall be given of the total amount subscribed.

That the Treasurer of the Farmers' Society shall be vested with all powers and authority necessary to carry this agreement, and the object thereof into effect.

At the Anniversary Meeting of the Agricultural Society of South-Carolina, held on Tuesday the 18th instant, the following gentlemen were elected Officers for the ensuing year:

John Hume, *President*; Hugh Rose, *Vice-President*; Charles E. Rowland, *Secretary*; Wm. Mason Smith, *Treasurer*; Wm. Washington, *Corres'g. Sec'y.*; John D. Legare, *Librarian*; James Cuthbert, *Orator for next Anniversary*.